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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,741	12/26/2000	John O. Limb	1875.0830001	4263

26111 7590 11/10/2005

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EXAMINER	
JUNTIMA, NITTAYA	
ART UNIT	**PAPER NUMBER**
2663	

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

uK

Office Action Summary	Application No.	Applicant(s)
	09/748,741	LIMB ET AL.
	Examiner	**Art Unit**
	Nittaya Juntima	2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 20 July 2005.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) 5 and 12 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4,6-11 and 13-30 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 26 December 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 7/20/2005.

2. Claims 1-30 are pending. Claims 5 and 12 were cancelled.

3. Claims 1-4, 6-11, and 13-30 remain rejected under 35 U.S.C 103 (a).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 8-11, 15-16, 20-22, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimwood et al. ("Grimwood") (USPN 6,459,703 B1) in view of Shimizu (USPN 4,926,420).

Per claim 1, as shown in Fig. 1, Grimwood teaches a central controller (CMTS 10, col. 7, ll 19-col. 8, ll 1-2), a first group of remote devices (SCDMA modems 30 and 32, col. 9, ll 31-34), a first protocol (SCDMA, col. 9, ll 31-34), a second group of remote devices (DOCSIS 1.0 TDMA modems 22 and 24, col. 9, ll 23-27), a second protocol (DOCSIS 1.0 TDMA, col. 9, ll 23-27), and a method comprising:

Assigning one or more time slots (minislots) on the same logical upstream channel (the same logical channel reads on a single upstream channel shown in Fig. 3) during which first group and second groups of remote devices may transmit information to the central controller

(CMTS 10, Fig. 1) (MAP messages generated by the CMTS are used in assigning mini slot numbers to TDMA and SCDMA modems such that there is no overlap in time between the TDMA and SCDMA regions on the same physical channel, col. 7, ll 49-66).

Distinguishing transmissions (bursts) from the first group of remote devices from the transmissions from second group of remote devices based on said time slot assignments (minislots) (since (i) a table of SIDs with mapping minislots is built for each logical channel/region sharing an upstream channel, col. 10, ll 45-col. 11, ll 17, (ii) MAP messages containing SIDs and mini slot assignments are generated for each TDMA and SCDMA regions by the CMTS in response to bandwidth requests submitted by the respective modems, col. 7, ll 49-66 and col. 9, ll 47-51, and Figs. 3 and 4, and (iii) the respective modems may transmit in their assigned mini slots, col. 13, ll 7-53, Fig. 4, therefore, the CMTS must distinguish the bursts from the SCDMA modems from the bursts from the TDMA modems based on the minislot assignments).

However, Grimwood fails to teach routing transmissions from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller, and routing transmissions from the second group of remote devices to a second processor in accordance with the second protocol within the central controller as recited in the claim.

However, in an analogous art shown in Figs. 5 and 10, Shimizu teaches routing transmissions (packet signals) from a first group of remote devices (inherent devices in LAN 31) to a first processor (LLC data processor 51) operating in accordance with the first protocol (LAN) within the central controller (TE 33) and routing transmissions (packet signals) from the

second group of remote devices (inherent devices in ISDN 32) to a second processor (ISDN data processor 52) in accordance with the second protocol (ISDN) within the central controller (TE 33). See col. 7, ll 10-15, 19-22, and 35-37, and col. 8, ll 56-64.

Given the teaching of Shimizu, it would have been obvious to one skilled in the art to include routing transmissions from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller and routing transmissions from the second group of remote devices to a second processor in accordance with the second protocol within the central controller into the teaching of Grimwood as recited in the claim. The suggestion/motivation to do so would have been to process the transmissions of the integrated system at a corresponding one of the processors as taught by Shimizu (Abstract, ll 12-19).

Per claims 2 and 9, Grimwood teaches embedding a first identifier (SIDs 96-150) in transmissions (bursts) from the first group of remote devices (SCDMA modems 30 and 32, col. 9, ll 31-34) and embedding a second identifier (SIDs 1-75) in transmissions (bursts) from the second group of remote devices (DOCSIS 1.0 TDMA modems 22 and 24, col. 9, ll 23-27), wherein transmissions from the first and second groups of devices are distinguished in accordance with the first and second identifiers (col. 9, ll 47-58, and col. 13, ll 7-53 and Fig. 4).

Per claims 3, 10, and 21, Grimwood teaches that the transmissions (bursts) from the first and second groups of remote devices comprise bandwidth requests (col. 9, ll 47-58).

However, Grimwood fails to explicitly teach that the bandwidth requests are transmitted in a request contention area.

An examiner notice is taken that the CMTS normally allocates some of the mini slots on the upstream channel as contention slots (a request contention area) for transmission of

bandwidth requests. Therefore, it would have been obvious to one skilled in the art to include transmitting the bandwidth requests in a request contention area. The suggestion/motivation to do would have been to allow any cable modem to transmit its bandwidth requirement to the CMTS.

Per claims 4 and 11, Grimwood teaches transmitting *bandwidth grants* (grants in MAP messages) to the first and second groups of remote devices in response to the bandwidth requests (col. 8, ll 58-66 and col. 12, ll 15-17, 38-42).

Claim 8 is a method claim containing similar limitations to method claim 1 and is rejected under the same reason set forth in the rejection of claim 1 with the addition that a cable modem termination system, cable modems, a proprietary protocol, and DOCSIS protocol in claim 8 correspond to a central controller, remote devices, a first protocol (see also col. 14, ll 63-col. 15, ll 3), and a second protocol in claim 1, respectively.

Per claim 15, as shown in Fig. 1, Grimwood teaches a first group of remote devices (SCDMA modems 30 and 32, col. 9, ll 31-34), a first protocol (SCDMA, col. 9, ll 31-34), a local host (CMTS 10, col. 7, ll 19-col. 8, ll 1-2), a second group of remote devices (DOCSIS 1.0 TDMA modems 22 and 24, col. 9, ll 23-27), a second protocol (DOCSIS 1.0 TDMA, col. 9, ll 23-27). Grimwood further teaches that local host (CMTS 10, Fig. 1) assigns one or more time slots (minislots) on the same logical upstream channel (reads on an upstream channel shown in Fig. 3) during which the first and second groups of remote devices may transmit information to said local host (MAP messages generated by the CMTS are used in assigning mini slot numbers to TDMA and SCDMA modems such that there is no overlap in time between the TDMA and SCDMA regions on the same physical channel, col. 7, ll 49-66), and a processor (CTMS must

include a processor) for distinguishing transmissions (bursts) from the first group of remote devices from the transmissions from the second group of remote devices based on said time slot assignments (minislots) (since (i) a table of SIDs with mapping minislots is built for each logical channel sharing a physical channel, col. 10, ll 45-col. 11, ll 17, and (ii) MAP messages containing SIDs and minislot assignments are generated for each TDMA and SCDMA regions by the CMTS in response to bandwidth requests submitted by the respective modems, col. 7, ll 49-66 and col. 9, ll 47-51, and Figs. 3 and 4, and (iii) the respective modems may transmit in their assigned mini slots, col. 13, ll 7-53, Fig. 4, therefore, the inherent processor must distinguish bursts from the TDMA modems from the bursts from the SCDMA modems based on the minislot assignments).

Grimwood fails to teach that the protocol processor also routes the transmissions from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller and routes the transmissions from the second group of remote devices to a second processor in accordance with the second protocol as recited in the claim.

However, in an analogous art shown in Figs. 5 and 10, Shimizu teaches a protocol processor (FID discriminator 59 and SA detector 60, collectively, for identifying packet signals from LAN and ISDN devices, col. 8, ll 28-51) that routes transmissions (packet signals) from a first group of remote devices (inherent devices in LAN 31) to a first processor (LLC data processor 51) operating in accordance with the first protocol (LAN) within the central controller (TE 33) and routing transmissions (packet signals) from the second group of remote devices (inherent devices in ISDN 32) to a second processor (ISDN data processor 52) in accordance

with the second protocol (ISDN) within the central controller (TE 33). See col. 7, ll 10-15, 19-22, and 35-37, and col. 8, ll 56-64.

Given the teaching of Shimizu, it would have been obvious to one skilled in the art to modify the teaching of Grimwood such that the protocol processor would route the transmissions from the first group of remote devices to a first processor operating in accordance with the first protocol and route the transmissions from the second group of remote devices to a second processor in accordance with the second protocol as recited in the claim. The suggestion/motivation to do so would have been to process the transmissions of the integrated system at a corresponding one of the processors as taught by Shimizu (Abstract, ll 12-19).

Per claims 16 and 22, Grimwood teaches that the local host (CMTS 10 in Fig. 1) further comprises a central processor for scheduling transmissions from the first and second groups of remote devices (since bandwidth is allocated and MAP messages are generated, col. 7, ll 36-66, therefore, CMTS must have a central processor to schedule and generates MAP messages used for minislot assignment for each modem).

Claim 20 is a cable television system claim containing similar limitations to system claim 15 and is rejected under the same reason set forth in the rejection of claim 15 with the addition that cable modems, a cable modem termination system, a proprietary protocol, DOCSIS protocol in claim 15 correspond to remote devices, a local host, and a first protocol, and second protocol in claim 15, respectively.

Per claims 26 and 27, Grimwood teaches distinguishing transmissions in a grant region from the first group of remote devices (bandwidth awards for SCDMA modems) from transmissions in the grant region from the second group of remote devices (bandwidth awards for

TDMA modems) based on the time slot assignment (MAP messages defines the bandwidth awards including time boundaries and minislot numbers for the SCDMA and TDMA modems, col. 7, ll 49-66).

Per claim 28, Grimwood further teaches that the transmissions (bursts) from the first and second groups of remote devices comprise transmissions in a grant region (the bursts from SCDMA and TDMA modems are transmitted in the upstream bandwidth award region of an upstream channel as shown in Fig. 5, col. 13, ll 7-53).

6. Claims 6-7, 13-14, 17-19, 23-25, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimwood et al. ("Grimwood") (USPN 6,459,703 B1) in view of Shimizu (USPN 4,926,420), and further in view of Vogel et al. ("Vogel") (USPN 6,751,230 B1).

Per claims 6 and 13, the combined teaching of Grimwood and Shimizu fails to teach creating a first multicast group and a second multicast group, and transmitting groups messages from the central controller to the first and second groups of remote devices in accordance with the first and second multicast groups.

As shown in Fig. 1, Vogel teaches creating a first multicast group comprising a first group of remote devices (multicast group with modified MAC multicast address having multiple modems 28 assigned to, col. 5, ll 42-52, 65-col. 6, ll 1-9), creating a second multicast group comprising a second group of remote devices (multicast group with the MAC multicast address in DOCSIS compliant form having multiple modems 28 assigned to, col. 5, ll 42-45, 60-65), and transmitting group messages from a central controller (CMTS 30) to the first and second groups of devices in accordance with the first and second multicast groups (col. 6, ll 14-29).

Given the teaching of Vogel, it would have been obvious to modify the combined teaching of Grimwood and Shimizu to incorporate creating a first multicast group and a second multicast group, and transmitting groups messages from the central controller to the first and second groups of remote devices in accordance with the first and second multicast groups. The suggestion/motivation to do so would have been to enable the central controller (CMTS) to communicate with a particular group of devices by sending only a single targeted message instead of large number of unicast messages as taught by Vogel (col. 6, ll 48-58).

Per claims 7 and 14, Grimwood fails to teach (i) receiving communications addressed for the first and second groups of devices, (ii) routing communications addressed for the first and second groups to the first processor and second processor, respectively, within a central controller, and (iii) transmitting the processed communications to the addressed remote devices.

Regarding (ii) as explained in claims 1 and 8, in an analogous art, Shimizu teaches routing communications (packet signals) for the first (devices in LAN 31) and second (device in ISDN 32) groups to the first processor (51, Fig. 10) and second processor (52, Fig. 10), respectively, within a central controller (TE33, Figs. 5 and 10) (col. 6, ll 15-21, col. 8, ll 22-26 and 40-51).

Regarding (i) and (iii), Vogel teach (i) receiving communication addressed for a remote device (data from computer 10 in Fig. 1 must be addressed for corresponding modem 28 in order to be transmitted by the CMTS 30 on the downstream direction to CPE 14, col. 1, ll 63-col. 2, ll 1, 39-51, and col. 5, ll 60-65) and transmitting a processed communication to addressed remote devices (modulated data is transmitted to modems 28, col. 1, ll 63- col. 2, ll 1, 39-51, and col. 5, ll 60-65).

Given the teaching of Vogel, it would have been obvious to one skilled in the art to modify the teaching of combined teaching of Grimwood and Shimizu to incoperate (i) and (iiii) such that the steps of receiving communications addressed for the first and second groups of devices, routing communications addressed for the first and second groups to the first processor and second processor, respectively, within a central controller, and transmitting the processed communications to the addressed remote devices would be included as recited in the claim. The suggestion/motivation to do so would have been to provide transmission in the downstream direction to the remote devices connected to the network as taught by Vogel (col. 1, ll 63-col. 2, ll 1).

Per claims 17-18, and 23-25, the combined teaching of Grimwood et al. and Shimizu fails to teach an upstream demodulator and a downstream modulator.

As shown in Fig. 1, Vogel teaches an upstream demodulator (a demodulation circuit DEMOD) and a downstream modulator (a modulation circuit MOD) (col. 1, ll 63-col. 2, ll 1-8).

Given the teaching of Vogel, it would have been obvious to one skilled in the art to include an upstream demodulator and a downstream modulator into the combined teaching of Grimwood and Shimizu. The suggestion/motivation to do so would have been to provide an appropriate demodulation and modulation to the data transmitted upstream and downstream to/from the local host (CMTS) as taught by Vogel (col. 1, ll 63-col. 2, ll 1-8).

Per claim 19, Grimwood teaches embedding service identifiers (SIDs 76-150) in each upstream bandwidth requests (bandwidth requests), a first identifier (SIDs 76-150), a second identifier (SIDs 1-75) (col. 8, ll 58-66, col. 9, ll 23-34 and 55-58, and col. 12, ll 15-17, and Fig. 4).

However, the combined teaching of Grimwood and Shimizu does not teach that each of the remote devices comprises a media access controller.

Vogel teaches that each of the remote devices (modems 28 in Fig. 1) comprises a media access controller (a MAC controller must be included to filter the MAC address, col. 2, ll 39-42).

Therefore, it would have been obvious to one skilled in the art to include in each of the remote devices a media access controller as recited in the claim. The motivation/suggestion to do so would have been to enable the remote devices to match the MAC destination address against addresses stored in them as taught by Vogel (col. 2, ll 39-42 and 46-49).

Per claims 29 and 30, Grimwood teaches that the first and second groups of remote devices transmit transmissions (bandwidth requests) to the local host/cable modem termination system (CMTS 10 in Fig. 1) (col. 9, ll 47-58), and that the local host/cable modem termination system (CMTS 10 in Fig. 1) distinguishes transmissions from the first group of cable modems from transmissions from the second group of cable modems according to the first and second identifiers (the CMTS uses SIDs in the bandwidth requests to look up each RU to determine the modem type, col. 9, ll 52-58).

However, Grimwood fails to explicitly teach the request contention area as recited in the claim.

An examiner notice is taken that the CMTS normally allocates some of the mini slots on the upstream channel as contention slots (a request contention area) for transmission of bandwidth requests. Therefore, it would have been obvious to one skilled in the art to include transmitting the bandwidth requests in a request contention area. The suggestion/motivation to

do would have been to allow any cable modem to transmit its bandwidth requirement to the CMTS.

Response to Arguments

7. Applicant's arguments filed 7/20/2005 have been fully considered but they are not persuasive.

A. In the remarks regarding claims 1, 8, 15, and 20, the applicant argues that Grimwood does not teach or suggest (a) assigning one or more time slots on the same logical upstream channel and (b) distinguishing transmissions from the first group of remote devices from transmission from the second group of remote devices based on the time slot assignments.

In response, regarding (a), the limitation "the same logical upstream channel" is nothing more than a single upstream channel divided into time slots to carry transmissions from two groups of remote devices to the CMTS. Therefore, it can be interpreted that the time slots of the claimed logical upstream channel are divided into two regions, i.e. one time slot region for the first group of the devices and another time slot region for the second group of the devices. Grimwood also teaches the same, i.e. the upstream channel shown in Fig. 3 that is divided into minislots to serve two types of modems, i.e. SCDMA and TDMA modems. Also, Grimwood teaches the MAP messages which define the time boundaries and minislot numbers of SCDMA and TDMA regions and are used in assigning mini slot numbers to TDMA and SCDMA modems such that there is no overlap in time between the TDMA and SCDMA regions on the same upstream channel. See col. 7, ll 49-66 and col. 11, ll 46-64. Note that Grimwood's SCDMA and TDMA regions/logical channels

are intervals (col. 8, ll 60-66) or, basically, groups of consecutive minislots on the upstream channel. Therefore, Grimwood clearly teaches limitation (a). In addition, there is not structural or functional difference between the claimed logical upstream channel and Grimwood's upstream channel (Fig. 3).

Regarding (b), Grimwood teaches that (i) a table of SIDs with mapping minislots is built for each SCDMA and TDMA region sharing an upstream channel (col. 10, ll 45-col. 11, ll 17), (ii) MAP messages containing SIDs and mini slot assignments are generated for TDMA and SCDMA modems by the CMTS (col. 7, ll 49-66 and col. 9, ll 47-51, and Figs. 3 and 4), and (iii) the respective modems may transmit in their assigned mini slots (col. 13, ll 7-53, Fig. 4). Therefore, the CMTS must distinguish the bursts from the TDMA modems from the bursts from the SCDMA modems transmitted on the upstream channel based on the minislot assignments.

Further the Examiner pointed out in the previous Office action that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shimizu into the teaching of Grimwood to include routing transmissions from the first and second groups of remote devices to a first processor with the first protocol and second processor with the second protocol, respectively, in order to process the transmissions of the integrated system at a corresponding one of the processors as taught by Shimizu (Abstract, ll 12-19). Applicant failed to point out the error in the motivation in the rejection.

With respect to the explanations above, the rejection of claims 1, 8, 15, and 20 and their dependent claims is sustained.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
November 2, 2005
NJ

RICKY NGO
PRIMARY EXAMINER